



Economic Impact Analysis Virginia Department of Planning and Budget

4 VAC 25-40 – Safety and Health Regulations for Mineral Mining
Department of Mines, Minerals and Energy
August 8, 2008

Summary of the Proposed Regulation

The Department of Mines, Minerals and Energy (DMME) proposes to amend the existing Safety and Health Regulations for Mineral Mining for better protection of persons and property on and around mineral mines. DMME proposes to amend sections dealing with blasting to require that: 1) flyrock incidents be reported to the Division of Mineral Mining (division) immediately and details noted in the blast record; 2) the certified blaster in charge review the drill logs to determine specific downhole conditions prior to loading the shot; 3) areas containing loaded boreholes be posted as well as barricaded, if not guarded; 4) drill logs for boreholes intended for blasting be included in the blast record; 5) mine operators maintain a plan to control the affects of blasting on adjacent areas; and 6) electronic detonation systems be approved by the Director of the division and used according to manufacturer's instructions. Sections regarding underground rescue and evacuation will be reorganized and strengthened. One section is added to require that structures shall be of substantial construction and maintained in safe condition. DMME also proposes to make corrections and clarifications to the existing language.

Results of Analysis

There is insufficient data to accurately compare the magnitude of the benefits versus the costs. Detailed analysis of the benefits and costs can be found in the next section.

Estimated Economic Impact

The purpose of the existing Safety and Health Regulations for Mineral Mining is to provide for the protection of persons and property on and around mineral mines. DMME proposes to amend the sections dealing with blasting for improved safety. One of the proposed changes is to require that flyrock incidents be reported to the division immediately and details

noted in the blast record. Flyrock means any uncontrolled material generated by the effect of a blast that is hazardous to persons, or to property not owned or controlled by the operator. The existing regulations do not specifically require the reporting of flyrock incidents. However, according to DMME, mine operators generally report flyrock incidents. Thus adding this proposed requirement will allow DMME to better monitor the blasting and will help in minimizing the effects of the flyrock incidents, without causing any significant costs to the mine operators.

The proposed regulation also requires that areas containing loaded boreholes be posted as well as barricaded, if not guarded. The current regulation requires that areas containing boreholes be either guarded or barricaded. Requiring the areas to be posted in addition to being barricaded when not guarded will prevent unauthorized entry and protect people living near the mineral mines. This proposed change will likely not cause any significant costs because a sign or other visual indications will serve the need for posting.

DMME proposes to require that drill logs for boreholes intended for blasting be included in the blast record and to add a section specifying the required information to be included in the drill logs. The certified blaster in charge will be required to review the drill logs to determine specific downhole conditions prior to loading the shot. According to DMME, reviewing the drill log may take 5 to 10 minutes. Currently it is standard practice for the drillers to prepare drill logs and for the certified blaster to review the drill log. Some of the blasting contractors already have internal policies that require the review of drill logs by their blasters. Therefore, these requirements will likely not cause any significant costs for the operators or the certified blasters. Requiring the blaster to review the logs prior to loading the shots will help the blaster gain more accurate knowledge of the blastholes he is loading, which will likely improve the loading process and reduce the possibilities of incidents.

According to the proposed regulation, each mine operator shall maintain a plan to control the effects of blasting on adjacent areas. This plan shall be documented and made available for review by the division upon request. This proposed change will improve protection of areas adjacent to the blasting and may help in dealing with citizen complaints related to blasting. DMME reports that there are about 130 mineral mines in the Commonwealth that use explosives.

These mineral mines will be required to develop such a plan, which will cause an estimated one-time cost of approximately \$300 each on average.

Another proposed change relating to blasting requires that the electronic detonation systems be approved by the Director of the division and used according to manufacturer's instruction. The electronic detonation system is a fairly new technology and is becoming more widespread due to improvement in blasting that they provide. This proposed requirement will assure that the types to be employed have been approved as safe.

DMME proposes to amend and strengthen sections regarding underground rescue and evacuation. As one of the proposed changes, telephones are required to be supplied in refuge areas, in addition to adequate air and water supplies, for improved communications during emergencies. According to DMME, currently there are only two underground mines in the Commonwealth, which shall comply with sections regarding underground rescue and evacuation. Neither of them is required to have refuge areas due to other sections of the regulations. And, both of the underground operators have spare telephone units that could be used in refuge areas when needed. Therefore, this proposed requirement will likely not cause any significant costs for these two underground mine operations. For future underground operations, DMME estimates that a new telephone supplied in refuge areas may cost approximately \$300.

Another proposed change regarding underground rescue is that a written plan for the number, type, and location of self-rescue devices will be required and shall be sufficient for the number of people working underground and the possible hazards of the mine. And, the escape and evacuation plan shall include a plan for instruction of mine workers and rescue personnel, as well as a statement of the location and availability of mine rescue personnel and equipment. The mine maps shall include more information than currently required. These proposed changes regarding underground rescue and evacuation will likely increase worker safety and minimize the potential hazard in the mineral mines. DMME estimates that it will take the draftsman or engineer 5 to 10 minutes to add the locations onto the map. The other proposed requirements about the plans will cause minimal costs to the mine operators because they are currently addressed in the federal regulations (30 CFR Part 56 & 57). Adding these requirements to the existing regulation will make the regulation consistent with the federal regulations.

The proposed regulation will allow small mines employing fewer than 75 persons underground to request in writing and obtain approval from the director of DMME for an alternative mine rescue capability. Under the current regulation, smaller mines are required to have at least one person so trained for each 10 persons employed underground. This proposed change will provide small mines with flexibility in developing a mine rescue capability that is most suitable to their situation and will likely benefit these small mines.

DMME also proposes to add one section requiring that structures shall be of substantial construction and maintained in safe condition. “Substantial construction” means construction of such strength, material, and workmanship that the object will withstand all reasonable shock, wear, and usage to which it will be subjected. The current regulation has one section stating that machinery and equipment shall be maintained in accordance with manufacturer's specifications. DMME proposes to add a section about the structure to ensure that structures be in good condition.

Besides the above proposed changes, DMME will also make corrections and update references to the existing language to improve clarity of the regulation, which will reduce confusion and benefit the regulatory community.

Businesses and Entities Affected

According to DMME, there are approximately 440 mineral mines in the Commonwealth of Virginia. There are approximately 130 mineral mines that use explosives and two underground mines. People working or living near the mineral mines will benefit from the proposed regulation.

Localities Particularly Affected

The proposed regulations will affect all localities in the Commonwealth that have mineral mines. According to DMME, 91% of Virginia’s counties have mineral mines governed by these regulations.

Projected Impact on Employment

The proposed regulation will improve worker safety of the mineral mines and will likely have a positive impact on the number of people working in those mines. Some of the proposed changes may cause a few minutes’ extra work for the relevant persons.

Effects on the Use and Value of Private Property

The proposed regulation will improve safety of the mineral mines and will better protect the property on and around the mines, which may have a positive impact on the value of these properties. The proposed requirement of maintaining a plan to control the effects of blasting on adjacent areas will cause a one-time cost of approximately \$300 to the mineral mines on average, which may have a slight negative impact on their profits and thus the value of their property.

Small Businesses: Costs and Other Effects

Small mineral mines that use explosives will likely incur an estimated one-time cost of approximately \$300 each to maintain a plan to control the effects of blasting on adjacent areas. Allowing small mines with fewer than 75 persons underground to request and obtain approval for an alternative mine rescue capability will provide these mines with more flexibility in developing a mine rescue capability and will likely benefit these small mines. According to DMME, most of the 440 mineral mines are small businesses.

Small Businesses: Alternative Method that Minimizes Adverse Impact

The proposed regulation will improve worker safety and provide for better protection of persons and properties from the effects of mining. Small mineral mines will incur a one-time cost of \$300 to maintain a plan to control the effects of blasting on adjacent areas. Small mines with fewer than 75 persons underground may benefit from more flexibility in developing a mine rescue capability. There is no alternative method that can achieve the same purpose with a lower adverse impact.

Real Estate Development Costs

The proposed amendments are unlikely to significantly affect real estate development costs.

Legal Mandate

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.04 of the Administrative Process Act and Executive Order Number 36 (06). Section 2.2-4007.04 requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or

other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. Further, if the proposed regulation has adverse effect on small businesses, Section 2.2-4007.04 requires that such economic impact analyses include (i) an identification and estimate of the number of small businesses subject to the regulation; (ii) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the regulation, including the type of professional skills necessary for preparing required reports and other documents; (iii) a statement of the probable effect of the regulation on affected small businesses; and (iv) a description of any less intrusive or less costly alternative methods of achieving the purpose of the regulation. The analysis presented above represents DPB's best estimate of these economic impacts.